

WHAT IS CLAIMED IS :

1. A knee protecting airbag device comprising:

a folded airbag; an inflator for feeding an inflating gas to said airbag; and a case housing said airbag and said inflator and arranged in front of a seated passenger,

wherein said airbag fed with the inflating gas extends and expands, while protruding to the rear from the opening of said case, to protect the knees of the passenger,

wherein said knee protecting airbag device further comprises a holding member holding said case, which has a mounting portion for mounting on the vehicle, and

wherein said holding member includes a communication hole communicating with the opening of said case for allowing said airbag to protrude when expanding, and a support face arranged on the periphery of said communication hole for supporting the vehicle front side face of said expanding airbag.

2. A knee protecting airbag device according to Claim 1,

wherein said case having housed said folded airbag and said inflator is assembled in advance with said holding member into an assembly.

3. A knee protecting airbag device,

wherein a knee protecting folded airbag and an inflator for feeding an inflating gas to said airbag are housed in a plate-shaped holding member arranged in front of the knees of a seated passenger,

wherein an airbag cover for covering the housed airbag in a manner allowing the airbag to protrude is mounted on said holding member,

wherein said holding member includes a bottomed box-shaped housing portion for housing said airbag and said inflator,

wherein said housing portion is opened toward the vehicle rear,

wherein said airbag cover includes:

a door portion for covering the opening of said housing portion, to open when pushed by said expanding airbag;

a thinned breakaway portion arranged periphery of said door portion broken for said door portion to open;

a hinge portion arranged around said door portion for providing a pivot for said door portion being opened; and

a general portion arranged around said door portion, said breakaway portion and said hinge portion for covering the periphery of said housing portion in said holding member on the vehicle rear side, and

wherein mounting members to be mounted on said housing portion through said holding member are arranged at a plurality

of portions of said general portion in the opening periphery of said housing portion.

4. A knee protecting airbag device according to Claim 3, wherein the individual mounting members of said airbag cover have retaining holes, and

wherein said housing portion has a plurality of hooks to be inserted into said retaining holes for retaining said mounting members.

5. A knee protecting airbag device according to Claim 3, wherein said holding member has a joining portion which is connected to the vehicle body side when said knee protecting airbag device is mounted on the vehicle, and

wherein a kinetic energy absorbing member capable of absorbing the kinetic energy of the knees is arranged on the body side of said vehicle, to which said joining portion is connected.

6. A knee protecting airbag device comprising an airbag module arranged in front of the knees of a seated passenger,

wherein said airbag module includes: a knee protecting folded airbag; an inflator capable of feeding an inflating gas to said airbag; a case for housing said airbag and said inflator; and an airbag cover for covering the vehicle rear

side in the opening of said case,

wherein said case has an opening for allowing said airbag when extending and expanding to protrude toward the rear of the vehicle,

wherein said knee protecting airbag device further includes a plate-shaped holding member made of a deformable material,

wherein said holding member has a plate-shaped portion extending from around the opening of said case, and mounting portions to be mounted on the vehicle body,

wherein said plate-shaped portion is arranged on the vehicle front side of the area of said airbag which has completed its expansion and,

wherein said mounting portions are arranged near the periphery of said plate-shaped portion,

wherein said holding member is constructed to hold the case having housed said airbag and said inflator, and said airbag cover, and

wherein when a kinetic energy higher than a predetermined level is applied by said knees to said airbag, said plate-shaped portion can be deformed to absorb the kinetic energy of said knees.

7. A knee protecting airbag device according to Claim 6, wherein said plate-shaped portion of said holding member

has ribs capable of adjusting the quantity of the kinetic energy of said knees which can absorbed.

8. A knee protecting airbag device according to Claim 7, wherein said plate-shaped portion of said holding member has a flange portion arranged on its periphery for adjusting the quantity of the kinetic energy of said knees which can absorbed.

9. A knee protecting airbag device arranged in front of the knees of a seated passenger and comprising:

a knee protecting folded airbag; an inflator for feeding an inflating gas to said airbag; a case opened toward the vehicle rear for housing said airbag and said inflator; and an airbag cover for covering said case on the rear-facing side,

wherein said airbag cover consists of an integral molding including: a door portion for covering the opening of said case and a general portion arranged around said door portion,

wherein said door portion includes: a hinge portion arranged at a lower end for providing a pivot when said door portion is opened; and a thinned breakaway portion arranged at the periphery excepting said hinge portion, that can be opened downward when said airbag expands, and

wherein extension promoting means for opening said door portion quickly to promote the extension and expansion of said

airbag is arranged near said door portion.

10. A knee protecting airbag device according to Claim 9,
wherein said door portion is arranged at such an inclination as to intersect the vertical direction by arranging its upper end toward the vehicle rear and its hinge portion toward the vehicle front.

11. A knee protecting airbag device according to Claim 10,
wherein said case includes a peripheral wall portion and a bottom wall portion,

wherein said airbag cover has a mounting wall portions for mounting and fixing said airbag cover on said case periphery wall portion, and

wherein said wall mounting portion serving as said extension promoting means is arranged near an upper end breakaway portion above said door portion.

12. A knee protecting airbag device according to Claim 10,
wherein a guide wall portion covering the lower side of said opening is arranged in said case near said door portion, and

wherein said guide wall portion serves as said extension promoting means to guide said expanding airbag toward the upper side of said door portion.

13. A knee protecting airbag device according to Claim 10,
wherein said door portion has ribs formed to protrude
forward, and

wherein the face of said ribs on the vehicle front side
is an easily pushed face serving as said extension promoting
means for opening said door portion when pushed by said
expanding airbag.

14. A knee protecting airbag device according to Claim 10,
wherein said case includes a peripheral wall portion and
a bottom wall portion,

wherein a left side wall portion and a right side wall
portion of said peripheral wall portion are inclined each other
so that the upper side distance between said left side wall
portion and said right side wall portion is set longer than
the lower side distance between said left side wall portion
and said right side wall portion, and

wherein said left side wall portion and said right side
wall portion act as said extension promoting means.

15. A knee protecting airbag device comprising:

a folded airbag; an inflator for feeding an inflating
gas to said airbag; and a case housing said airbag and said
inflator and arranged below a steering column,

wherein said airbag fed with the inflating gas extends and expands, while protruding toward the rear of the vehicle from the opening of said case, to protect the knees of the passenger,

wherein said case is opened toward the vehicle rear side and includes a peripheral wall portion and a bottom wall portion closing the vehicle front side of said peripheral wall portion , and

wherein said inflator is of a cylinder type and is so housed in said case that its axial direction is generally parallel to the axial direction of said case peripheral wall portion.

16. A knee protecting airbag device comprising:

a folded airbag; an inflator for feeding an inflating gas to said airbag; and a case housing said airbag and said inflator and arranged below a steering column,

wherein when said airbag fed with the inflating gas extends and expands it protrudes to the rear of the vehicle from the opening of said case, to protect the knees of the passenger, wherein said case is opened on the vehicle rear side and includes a peripheral wall portion and a bottom wall portion closing the vehicle front side of said peripheral wall portion, and

wherein said inflator is of a disc type and is so mounted

and fixed on the peripheral wall portion of said case that its axial direction is generally perpendicular to the axial direction of said case peripheral wall portion.

17. A knee protecting airbag device according to Claim 16, wherein said case is constructed such that the upper side of the opening is positioned closer to the vehicle rear side than the lower side of the opening, and

wherein said inflator is mounted and fixed on the upper side wall portion in said case peripheral wall portion.

18. A knee protecting airbag device comprising:

a folded airbag; an inflator for feeding an inflating gas to said airbag; and a case housing said airbag and arranged below a steering column,

wherein when said airbag fed with the inflating gas extends and expands, it protrudes backward of the vehicle from the opening of said case, to protect the knees of the passenger,

wherein said case is opened toward the vehicle rear side and includes a peripheral wall portion and a bottom wall portion closing the vehicle front side of said peripheral wall portion, and

wherein said inflator has a gas feed passage for feeding the inflating gas to said airbag folded and housed in said case, the inflator being arranged outside of said case.